

**Appln No. 09/828,304**  
**Amdt date March 1, 2004**  
**Reply to Office action of January 13, 2004**

**REMARKS/ARGUMENTS**

The remarks that follow are responsive to the Office Action mailed on January 13, 2004, on the above-referenced application.

Claims 1 to 55 are pending in this application. Applicants have amended independent claims 1, 27, 29, 43, and 46 to remove the term "quantity". No new matter has been added by these amendments.

The Examiner rejected all of claims 1 to 55 under either 35 U.S.C. §102(b) or §103(a) as being anticipated by or unpatentable over one or more of Kubota, et al. (U.S. Patent No. 6,128,056), Kajiyama, et al. (EP Patent No. 0501409), Toshida, et al. (U.S. Patent No. 5,812,227). Applicants respectfully traverse this rejection.

The claims of the current invention as currently amended are directed generally to:

An electro-optically active gel layer having nematic, ferroelectric, antiferroelectric or electroclinic properties comprising a plurality of aligned liquid crystal molecules having an anisotropic three-dimensional polymer network homogeneously dispersed therein, wherein the polymer network comprises a plurality of sparsely cross-linked polymer molecules.

(Claim 1, underlining added for emphasis.)

This amendment removes the Examiner's sole criticism of Applicants' distinction over the prior art, namely that the term "quantity" was somehow meant to infer the partially homogeneous nature of Applicants' material. Applicants have never intended such a reading of any of the claims of the current application. Applicants believe this amended claim clearly sets forth the "homogeneously dispersed" quality of the claimed material.

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In contrast, the material described in each of the prior art references cited by the Examiner can be in no way be considered a gel comprised of an anisotropic homogenously dispersed polymer network.

Specifically, Kubota, et al. write the following concerning their material:

. . . the liquid crystals are dispersed and held in the networks of matrix in the three dimensional network form comprising the polymer compound; and that a percentage of liquid crystal in the active area and a percentage of liquid crystal in the non-active area are so formed as to be different from each other.

[Kubota, et al., col. 7, lines 42 to 47.]

Moreover, the important of this distinction is highlight by Kubota, et al., which state:

According to this construction, a percentage of liquid crystal in the non-active area and a percentage of liquid crystal in the active area are so formed as to be different from each other. This can produce the result that in a reliability test, for example, in which the liquid crystal display element is allowed to stand in the environment in which ambient temperature varies from high temperature to low temperature, development of cracks is prevented in the polymer liquid crystal composite layer in the vicinity of the sealant.

[Kubota, et al., col. 7, lines 48 to 57.]

Likewise, Kajiyama, et al. summarize their invention as follows:

A liquid crystal display device which has a pair of transparent electrodes and a composite film having continuous pores of a polymer matrix filled with a liquid crystal material . . .

(Kajiyama, et al., abstract, underlining added for emphasis.)

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In short, nowhere do Kajiyama, et al. describe, teach, or even suggest the "homogeneous" gels recited in the claims of the current invention, but rather they describe phase separated materials having pores or pockets made of a polymer phase filled with a liquid crystal material.

Finally, Toshida, et al. write:

The display layer comprises a porous polymer material having open pores partially filled and a low-molecular weight mesomorphic compound impregnating the porous polymer material.

(Toshida, et al., abstract, underlining added for emphasis.)

In short, like the Kajiyama, et al. reference nowhere do Toshida, et al. describe, teach, or even suggest "homogeneous" gels as recited in the claims of the current invention, but rather phase separated polymer networks having pores which are "partially filled" with a liquid crystal material.

In summary, nowhere, do the Kubota, et al., Kajiyama, et al., nor Toshida, et al. references ever disclose, teach, or even suggest that the liquid crystal/polymer composite should be "homogeneously dispersed", as recited by Applicants claims. Accordingly, Applicants submit that the disclosure of these references cannot be said to anticipate the claims of the current invention.

Moreover, with regard to Examiner's §103(a) rejections, one of skill in the art having read the cumulative references would have had no motivation or guidance to construct an electro-optically active gel layer, having the homogeneous dispersion as taught by Applicants. As such, Applicants respectfully request reconsideration and withdrawal of these grounds of rejection.

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In view of the foregoing remarks, reconsideration and allowance of this application are respectfully requested. However, the Examiner is kindly requested to call the undersigned attorney if he should he deem any claim presently in the application unpatentable.

Respectfully submitted,

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